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1939 FOREST INSECT SURVEY SEQUOIA NATIONAL FOREST

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by
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Berkeley, California
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Forest Insect Laboratory
Berkeley, California
December 19, 1939

1939 FOREST INSECT SURVEY SEQUOIA NATIONAL FOREST

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1939 FOREST INSECT SURVEY SEQUOIA NATIONAL FOREST

INTRODUCTION

An appraisal of forest insect conditions in the Sequoia National Forest was made by the Forest Insect Laboratory, Berkeley, California. The work was carried out from October 14-23, 1939 by a reconnaissance party consisting of Robert S. Burns, Noel Street and Herman Daughs under the leadership of S. T. Carlson. All costs of the survey were carried by the Forest Insect Laboratory.

SCOPE AND METHOD OF THE SURVEY

The 1939 survey covered the four entomological units (see map, appendix) that were established in previous insect surveys. In addition a general reconnaissance was made in the valley floor of the Kings River Recreational Area, Ten-Mile Creek at Hume Lake, and Mineral King. The extent of future surveys will have to be enlarged to include new areas which are being developed and those in which development and use are planned for the near future.

The survey work was divided into three phases: (1) 100% cruises of three permanent sample plots (Table I, Appendix); (2) insect brood analyses consisting of felling currently infested sample trees and recording the species of insects found; and (3) a general reconnaissance by road traverse, foot travel, and viewing from vantage points, of the unit areas. The data gathered from these three sources are the bases for arriving at loss estimates (Table II, Appendix) and drawing up the picture of the current insect conditions.

GENERAL CONDITIONS

Insect conditions in that part of the forest examined are endemic. There has been a general increase of insect activity in most of the units but the increase has not resulted in any alarming loss nor were any large infestation centers noted. The Jeffrey pine beetle infestation in the Woodard Creek unit appears to be the most aggressive. There has also been some increased activity of the mountain pine beetle in sugar pine in Ten-Mile Creek and in the needleminer infested lodgepole pine at Mineral King.

CHARACTER OF THE INFESTATION

The 1939 infestation is generally distributed throughout the pine type. The attacks have been confined mostly to large, single mature trees, very few group kills being observed. There were few top-kills.

Ponderosa pine losses have been chiefly due to attacks of the western pine beetle, Dendroctonus brevicomis Lec.

The infestation in Jeffrey pine is largely one of the Jeffrey pine beetle (Dendroctonus jeffreyi Hopk.). Flatheaded borers (Melanophila spp.) played a minor role in initiating attacks on Jeffrey pine in the west slope areas covered in this survey.

Mountain pine beetle attacks, (Dendroctonus monticolae Hopk.) have been confined to sugar pine and lodgepole pine, and have shown general increased activity.

CONDITIONS IN UNIT AREAS

An estimate of the 1939 losses by unit areas is found in Table II, appendix.

Infestations in Whitaker, Camp Wishon and Camp Nelson Units are endemic, but with some appreciable increase over 1938. (See map, appendix.) The outlook for 1940 is a continuation of the increasing activity shown this year.

Woodard Creek Unit: The Jeffrey pine infestation here has shown a rather aggressive tendency for the past two years. The 1939 loss has shown a sharp increase. Artificial control, from an entomological standpoint would be feasible since there is only one primary insect involved and the extent of Jeffrey pine type is limited to a relatively small area. It appears that the justification for control of the infestation would be based largely on the esthetic value of the trees as there are no summer homes, campgrounds, or other developments containing sufficient Jeffrey pine stands to warrant control action. For these reasons, control has not been recommended.

Kings River Canyon Recreational Area: This unit has not been given annual examinations and has not been defined as an entomological unit. An investigation made this past season at Cedar Grove revealed that the current infestation was very low. The number of snags and dead trees observed are evidence that infestations during the past 25 years have been very severe. It is intended to make a more detailed examination and explanation of this area and incorporate it as one of the entomological units subject to annual inspection.

Mineral King Area: An increased activity of insects in the region lying between Atwell Mill and Tar Gap has been observed. The increase however is not alarming. Artificial control, if proposed here would have to be considered with Sequoia National Park stands to the west as the two together form a natural control unit.

The lodgepole pine needleminer (Recurvaria milleri Busck.) in the lodgepole pine at Sunny Point and Cabin area was examined on July 19 in connection with reconnaissance work in Sequoia National Park and again on October 5. The needleminer has been observed continuously since it was first discovered there in 1907 by Forest Examiner Hopping. At the time of this observation in July 1939, many moths were seen in flight and resting on the bark and foliage. Many of the insects in larval form were found in the needles on the October 5 examination. Repeated defoliation of the pine has resulted in retarded growth, dead twigs and branches and a general weakening of the tree. Bark beetle attacks are lethal to trees in this condition. The 1937 examination made here showed that the mountain pine beetle had killed one tree. This is the first record of the barkbeetle in the Mineral King area. During 1938 two lodgepole pines were killed and this year's examination showed that three more had been attacked. The "ghost forests" of lodgepole pine in Yosemite National Park are a result of similar infestations there. It is anticipated that the barkbeetles will eventually kill all of the large mature trees in this vicinity, unless control is initiated to destroy the present infestation. Since these infested trees are on private ground action will depend on the interest of these owners.

SUMMARY

The 1939 forest insect survey of the forest shows that the infestations for the most part are endemic. There has been a general increase of insect activity, notably the Jeffrey pine beetle in Woodard Creek, and the mountain pine beetle in lodgepole and sugar pines. The outlook for 1940 is an increase in infestation. The extension of the annual survey to forest areas that are assuming more importance and which are not now regularly included in the annual survey is contemplated.

Table I Pine Losses - Permanent Sample Plots 1937 - 38 - 39*

Plot	Tree Species	1937 No. Trees	1937 Tot.Vol. B.M.	1937 Vol. BM/Ac.	1938 No. Trees	1938 Tot.Vol. B.M.	1938 Vol. BM/Ac.	1939* No. Trees	1939* Tot.Vol. B.M.	1939* Vol. BM/Ac.
Camp Nelson	Pond. Pine	1	6,710	56	5	5,860	49	4	7,120	60
se - 1	Sugar Pine	--			1	30	0.3	1	500	4
120 acres	Pine total	1	6,710	56	6	5,890	49	5	7,620	64
Woodard Creek	Jeffrey P.	13	12,270	77	6	10,550	66	12	18,000	113
se - 2										
160 acres										
Whitaker	Pond. Pine	11	5,230	33	--			2	3,000	188
se - 3	Sugar Pine	--			1	230	1.4	1	300	18
160 acres	Pine total	11	5,230	33	1	230	1.4	3	3,300	206

*1939 Losses are estimated. The actual losses cannot be determined until June 1940

Table II Estimated Unit Pine Losses for 1937 - 38 - 39

Sequoia National Forest

Unit	Size, acres	1937		1938		1939	
		No. Trees	Volume B.M.	No. Trees	Volume B.M.	No. Trees	Volume B.M.
Camp Nelson	20,000	160	101,000	125	77,500	150	267,000
Camp Wishon	13,000	105	65,500	95	59,500	75	134,000
Whitaker	30,000	900	444,400	825	383,400	800	1,200,000
Woodard Creek	14,000	160	482,800	40	6,400	200	300,000
Total	77,000	1,325	1,093,700	1,085	526,800	1,225	1,901,000

SEQUOIA NATIONAL FOREST
FOREST INSECT SURVEYS, 1939

ESTIMATED UNIT PINE LOSSES, 1939

UNIT	NO. TREES	VOL. MBM
CAMP NELSON	150	267
CAMP WISHON	75	134
WHITAKER	800	1200
WOODARD CREEK	200	300
TOTALS	1225	1901

SAMPLE PLOTS

T 13 S
T 14 S
T 15 S
T 16 S
T 17 S
T 18 S
T 19 S
T 20 S
T 21 S
T 22 S

R 27 E
R 28 E
R 29 E
R 30 E
R 31 E
R 32 E